

A new Brazilian species of *Durenia* Vercammen-Grandjean, 1955 (Acari: Trombellidae) parasitizing mosquitoes (Diptera: Culicidae)



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Introduction

As members of the large taxa Parasitengona, mites in the family Trombellidae have a life cycle including three active instars, a larva that is parasitic and heteromorphic deutonymphs and adults which are free-living predators, interspersed with inactive, non-motile instars (Fig.1). In the genus *Durenia*, the larvae are reported parasitizing adult flies (Dolichopodidae and Culicidae). This genus has only seven described species, of which three were described based the larval instar, *D. bukavuensis* (Vercammen-Grandjean, 1955), *D. singaporensis* (Vercammen-Grandjean et. Al., 1959) and *D. papuana* (Fain and Grootaert, 1996). Of these three species, only *D. bukavuensis* has the larval and post-larval instars (deutonymph) described. The genus was report from Angola, Singapore, Papua New Guinea, Congo and Chile (Makol and Wohltmann, 2012). In this study, a new species of *Durenia* is described based on the larval instar.

Material and Methods

Mosquitoes with mites were collected in an area of Atlantic Forest in Palmito State Forest, located near the city of Paranaguá, Paraná state, southern Brazil (25° 35' S and 48° 32' W) (Fig. 2) in March of 2015 using a Nasci aspirator. Mites were photographed and 51 metric characters were measured in 4 paratypes using a Nikon Eclipse 90i compound microscope equipped with camera Nikon DS-fi1. Drawings were prepared using Adobe Illustrator imaging software. All measurements are in micrometers. The mosquitoes were identified as *Culex* sp. and *Uranotaenia* sp.. Abbreviations illustrated in figures 3, 4 and 5.

Results

Durenia sp. new. can be differentiated from all other larvae in the genus by having 4 smooth setae "N" (mechanoreceptors), on femur III (vs. and 6 in *D. papuana*, 2 in *D. bukavuensis* and *D. singaporensis*) and by the length of the solenidia (chemeoreceptor) on tarsi II (ω II = 18.8 - 25 vs. 28, 11-12 and 14-15 in *D. bukavuensis*, *D. singaporensis* and *D. papuana*, respectively) (Fig.3, C and B) .

It also can be differentiated from *D. bukavuensis* and *D. singaporensis* by the distance between the bases of the antero-submedian setae in the dorsal scutum (AMB = 3.5-4.6 vs. 8 and 8-9, respectively) (Fig. 4) and from *D. papuana* in shorter ventral setae. (VS= 11,0-20,5 vs. 24 – 36 in *D. papuana*) (Fig. 5). In table 1 each of the metric data is compared, the ones which show some difference are marked.

Conclusion

The differences described in the results and in table 1 support the identification of those larvae as an undescribed larval *Durenia*. It is the first occurrence of this genus in Brazil. We expected that this description will help to understand their ecology, influence in the mosquitoes and in the environment.

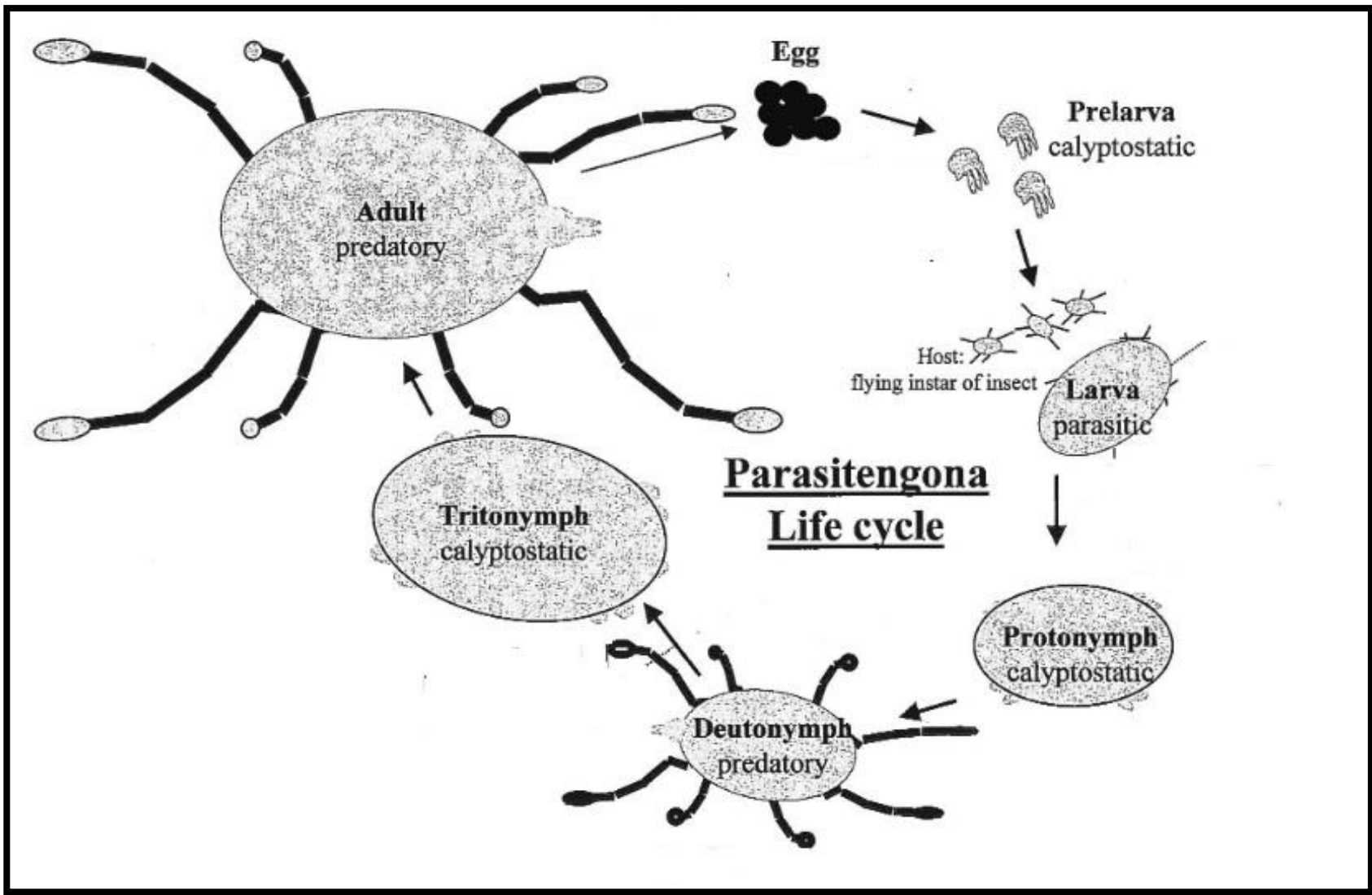


Figure 1. Parasitengona life cycle. Adapted from (Wohltmann, A., 2000)

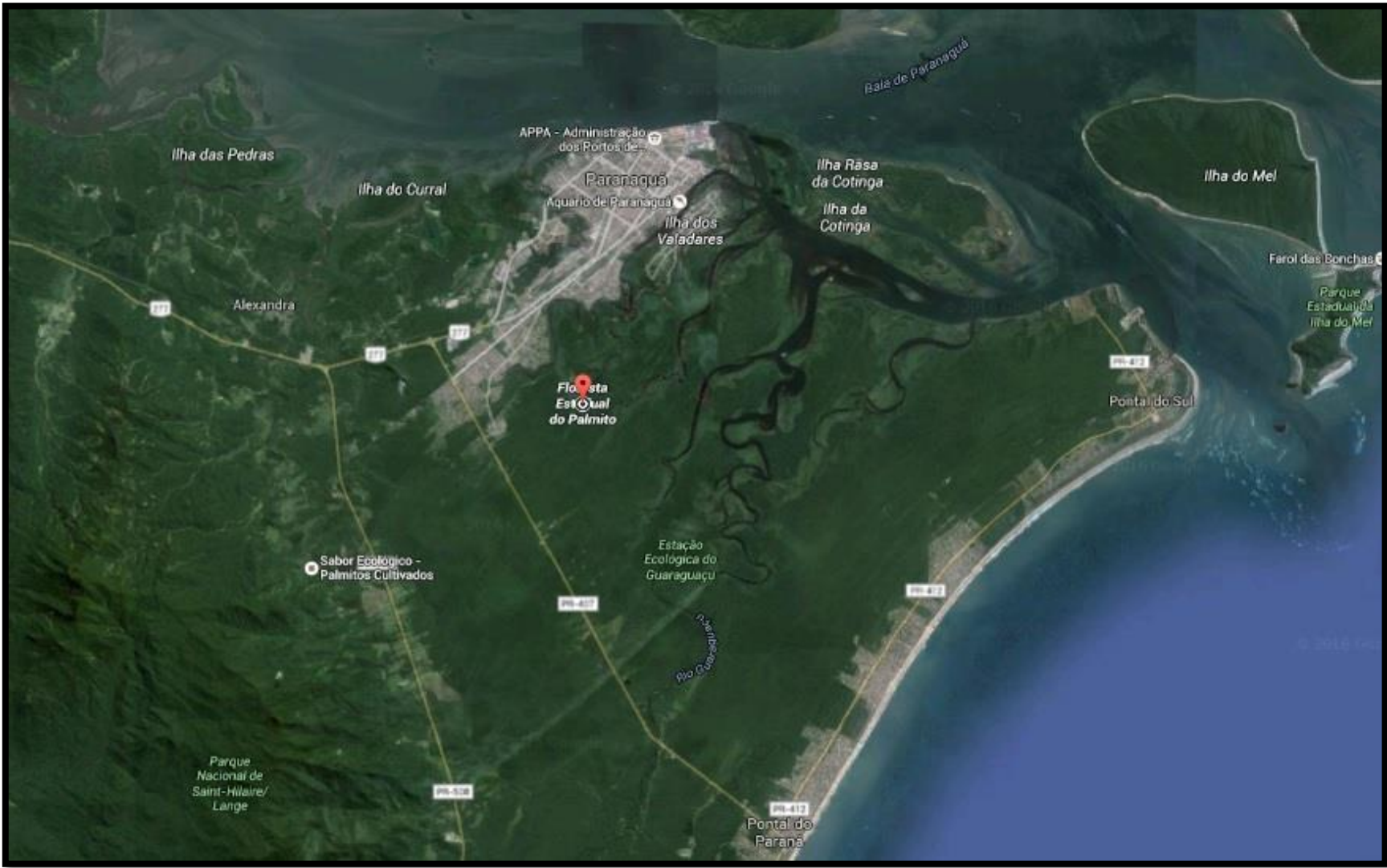


Figure 2. Palmito State Forest (Floresta estadual do Palmito). Adapted from Google maps.

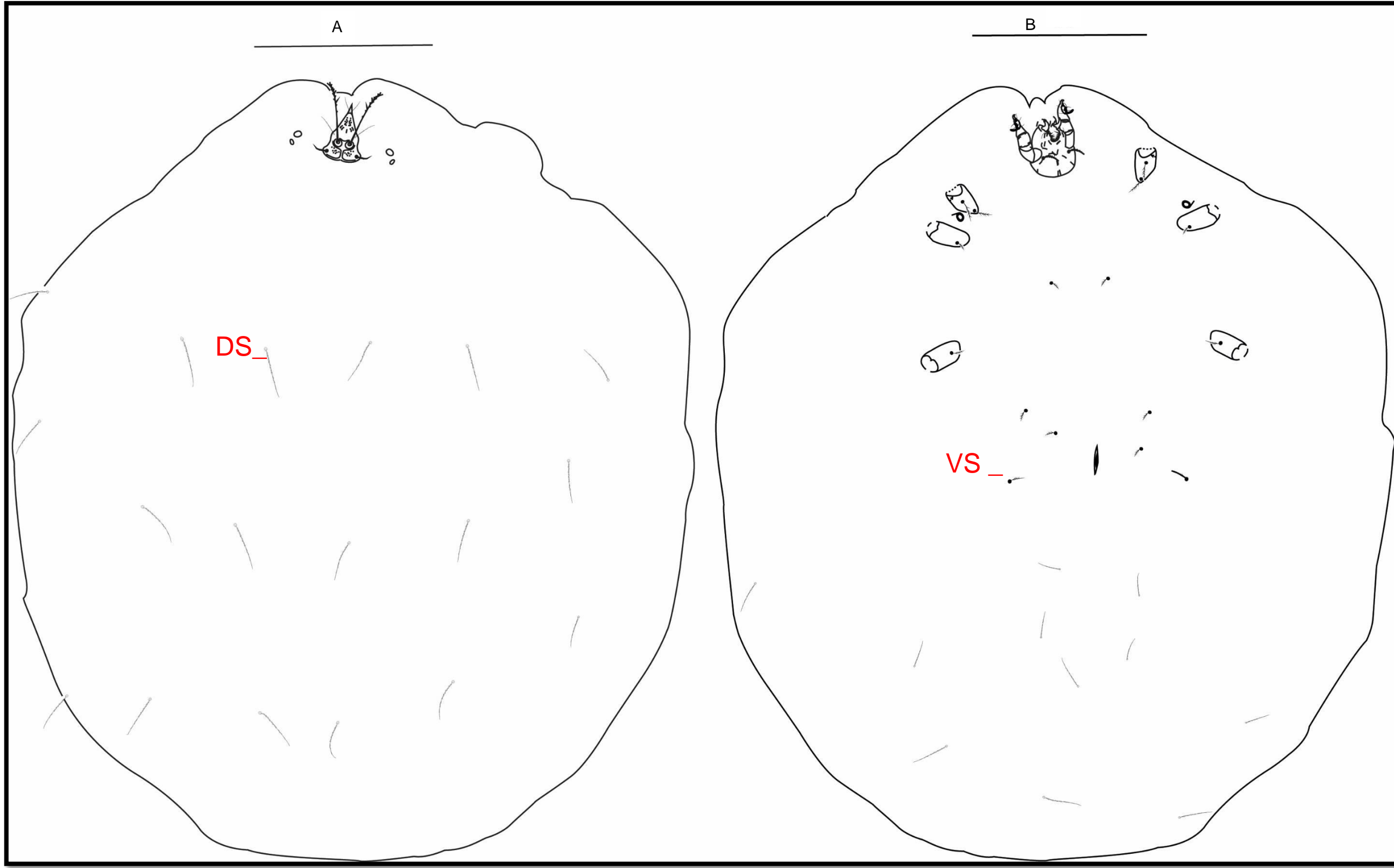


Figure 5. A and B, Idiossoma dorsal and ventral view. Scale – 200.

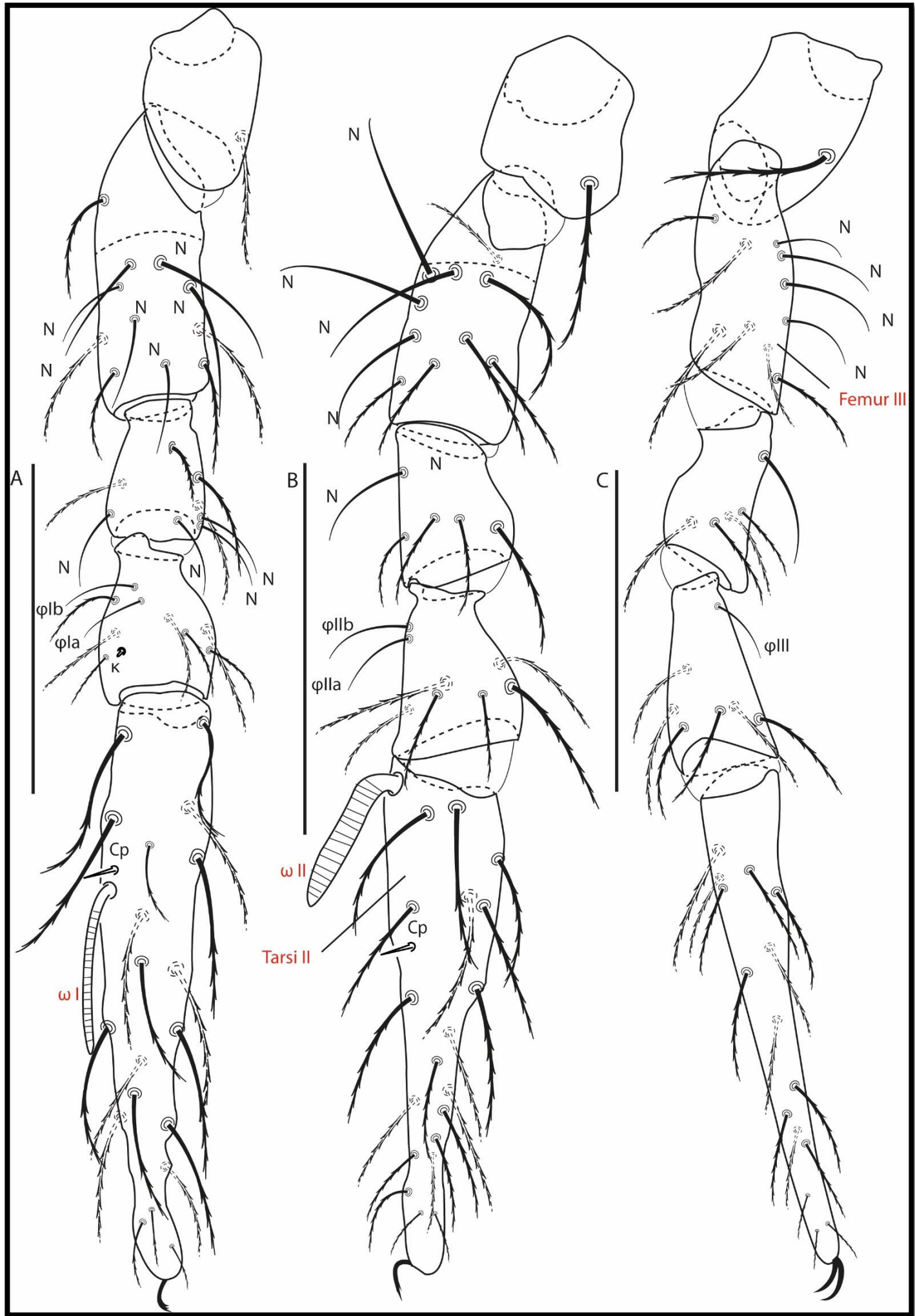


Figure 3. A, B and C - Leg I, II and III respectively. Scale – 200.

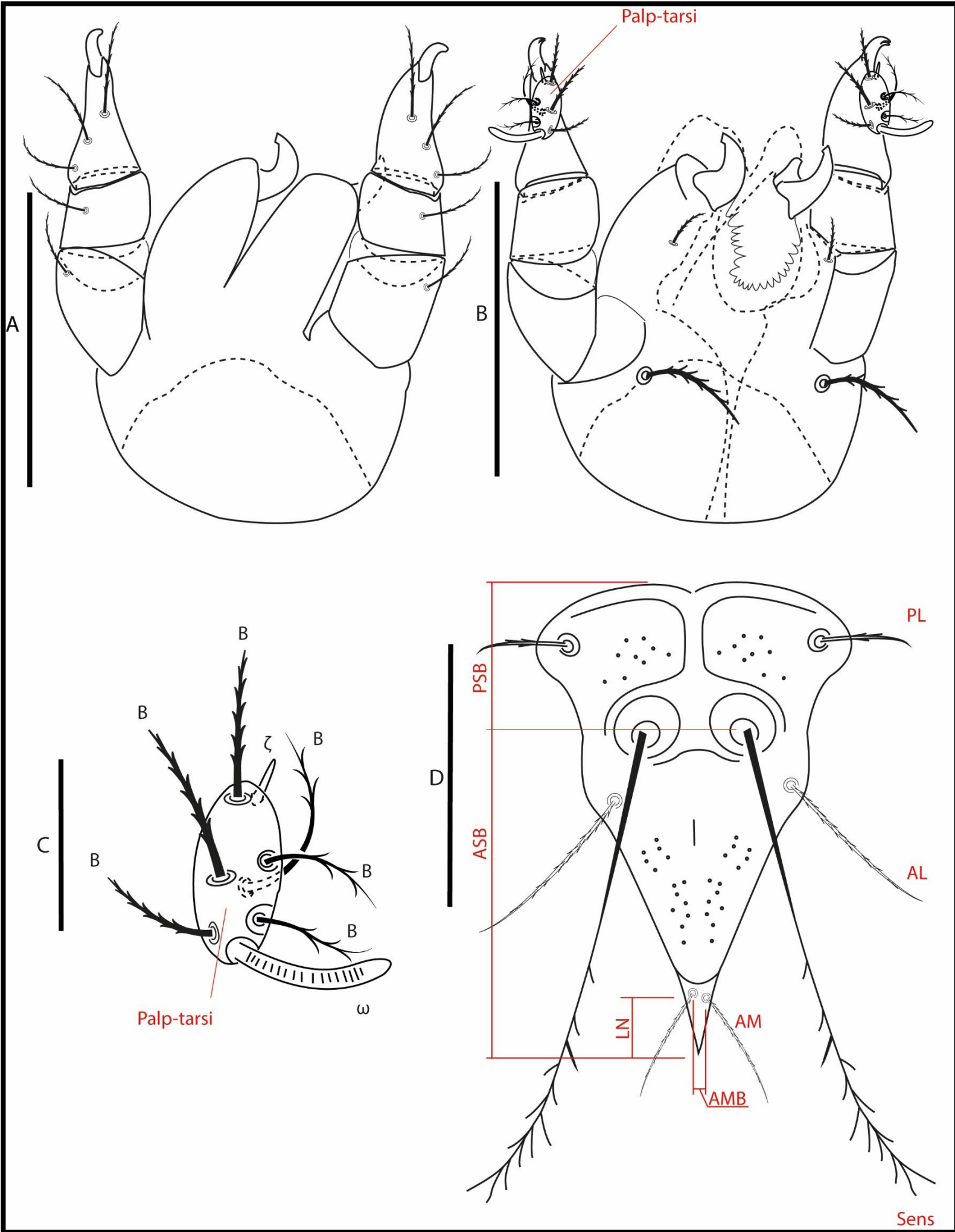


Figure 4. A, B, C and D – Gnatosoma dorsal view, ventral view, Palp-tarsi and Scutum, respectively. Scale – A,B and D = 50; C = 10.

Character	<i>Durenia</i> Sp. new	<i>D. bukavuensis</i>	<i>D. singaporensis</i>	<i>D. papuana</i>
AMB	3,5 - 4,6	8	8 - 9,	4 - 5,
PSB	19,6 - 22,8	27,0	19 - 26	15 - 19
LN	5,1 - 8,1	18,0	13 - 15	4 - 5,
AM	18,6 - 19,5	33,0	14 - 16	19 - 20
AL	20,2 - 25,6	19,0	9 - 16,	22 - 25
PL	8,6 - 11,0	16,0	8 - 5,	7,0
Sens	67,3 - 76,7	71,0	48 - 54	49,0
DS	51,0 - 61,7	33-52	21 - 36	42 - 50
VS	11,0 - 20,5	19-33	15 - 25	24 - 36
ω I	25,2 - 26,4	35,0	22 - 16	19,0
ω II	18,8 - 22,5	28	11 - 12,	14 - 15

Table 1. Comparative table with 11/51 metric characters.

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